



Material Safety Data Sheet

Syn EMB

1. Product and company identification

Product name : Syn EMB
Material uses : Synthetic lubricating grease
Supplier/Manufacturer : LUBRIPLATE® Lubricants Co.
129 Lockwood St.
Newark, NJ 07105
Telephone no.: 1-973-589-9150
Validation date : ***.
Prepared by : IHS
In case of emergency : CHEM-TEL 1-800-255-3924 (24 hour)

2. Hazards identification

Physical state : Solid. [semi-solid (Smooth. / grease)]
Color : Yellow. [Light]
Odor : oil
Emergency overview
Signal word : WARNING!
Hazard statements : *** HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
Precautions : Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Inhalation : Toxic by inhalation. Irritating to respiratory system.
Ingestion : No known significant effects or critical hazards.
Skin : Irritating to skin.
Eyes : Irritating to eyes.
Potential chronic health effects
Chronic effects : Contains material that may cause target organ damage, based on animal data.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.
Target organs : Contains material which may cause damage to the following organs: lungs, cardiovascular system, upper respiratory tract, skin, eyes.

Over-exposure signs/symptoms

***.

United States/Canada

1/11

2. Hazards identification

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Ingestion** : No specific data.
- Skin** : Adverse symptoms may include the following:
irritation
redness
- Eyes** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

3. Composition/information on ingredients

United States

Name	CAS number	%
Zinc oxide	1314-13-2	1-5
antimony tris[O,O-dipropyl] tris(dithiophosphate)	15874-48-3	1-5

Canada

Name	CAS number	%
Zinc oxide	1314-13-2	1-5
antimony tris[O,O-dipropyl] tris(dithiophosphate)	15874-48-3	1-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4. First aid measures

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

Flammability of the product : No specific fire or explosion hazard.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
phosphorus oxides
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Move containers from spill area. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Absorb with an inert material and place in an appropriate waste disposal container. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be

7. Handling and storage

hazardous. Do not reuse container.

Storage

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
Zinc oxide	NIOSH REL (United States, 1/2013). CEIL: 15 mg/m ³ Form: Dust TWA: 5 mg/m ³ 10 hours. Form: Dust and fumes STEL: 10 mg/m ³ 15 minutes. Form: Fume OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Fume STEL: 10 mg/m ³ 15 minutes. Form: Fume TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m ³ 8 hours. Form: Fume TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust ACGIH TLV (United States, 3/2012). TWA: 2 mg/m ³ 8 hours. Form: Respirable fraction STEL: 10 mg/m ³ 15 minutes. Form: Respirable fraction
antimony tris[O,O-dipropyl] tris(dithiophosphate)	ACGIH TLV (United States, 3/2012). TWA: 0.5 mg/m ³ (as Sb) 8 hours OSHA PEL 1989 (United States, 3/1989). TWA: 0.5 mg/m ³ (as Sb) 8 hours. NIOSH REL (United States, 1/2013). TWA: 0.5 mg/m ³ (as Sb) 10 hours. OSHA PEL (United States, 6/2010). TWA: 0.5 mg/m ³ (as Sb) 8 hours.

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			Notations
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	
Zinc oxide	US ACGIH 3/2012	-	2	-	-	10	-	-	-	-	[a]
	AB 4/2009	-	2	-	-	10	-	-	-	-	[b]
	BC 4/2012	-	2	-	-	10	-	-	-	-	[b]
	ON 1/2013	-	2	-	-	10	-	-	-	-	[a]
	QC 12/2012	-	5	-	-	10	-	-	-	-	[c]
antimony tris[O,O-dipropyl] tris(dithiophosphate), as Sb	US ACGIH 3/2012	-	0.5	-	-	-	-	-	-	-	
	AB 4/2009	-	0.5	-	-	-	-	-	-	-	
	BC 4/2012	-	0.5	-	-	-	-	-	-	-	
	ON 1/2013	-	0.5	-	-	-	-	-	-	-	
	QC 12/2012	-	0.5	-	-	-	-	-	-	-	

Form: [a]Respirable fraction [b]Respirable [c]fume

Consult local authorities for acceptable exposure limits.

8. Exposure controls/personal protection

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Solid. [semi-solid (Smooth. / grease)]
- Flash point** : Not available.
- Auto-ignition temperature** : Not available.
- Flammable limits** : Lower: 0.9%
Upper: 7%
- Color** : Yellow. [Light]
- Odor** : oil
- pH** : Not available.
- Boiling/condensation point** : >288°C (>550.4°F)
- Melting/freezing point** : Not available.

9. Physical and chemical properties

Density	: Not available.
Vapor pressure	: <0.0013 kPa (<0.01 mm Hg) [room temperature]
Vapor density	: >5 [Air = 1]
Odor threshold	: Not available.
Evaporation rate	: <0.01 (butyl acetate = 1)
Viscosity	: Kinematic (40°C (104°F)): 1 cm ² /s (100 cSt)
Solubility	: Not available.
LogK _{ow}	: Not available.

10. Stability and reactivity

Chemical stability	: The product is stable.
Conditions to avoid	: No specific data.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials. Incompatible materials: Chlorine
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.

Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological information

Acute toxicity

Not available.

Chronic toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitizer

Not available.

Carcinogenicity

Conclusion/Summary : The mineral oils in the product contain < 3% DMSO extract (IP 346).

Classification

Not available.

Mutagenicity

Not available.

Teratogenicity

Not available.

Reproductive toxicity

11. Toxicological information

Not available.

12. Ecological information

Ecotoxicity : This material is very toxic to aquatic life. This material is toxic to aquatic life with long lasting effects.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Zinc oxide	Acute EC50 0.042 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute LC50 98 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 320 ppm Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic NOEC 0.017 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours

Persistence/degradability

Not available.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional, local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3077	Environmentally hazardous substance, solid, n.o.s. (Zinc oxide, antimony tris[O, O-dipropyl] tris (dithiophosphate)). Marine pollutant	9	III	 	Limited quantity Yes. Special provisions 8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33

14. Transport information

TDG Classification	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide, antimony tris[O,O-dipropyl] tris (dithiophosphate)). Marine pollutant	9	III	 	Explosive Limit and Limited Quantity Index 5 Special provisions 16
IMDG Class	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide, antimony tris[O,O-dipropyl] tris (dithiophosphate)). Marine pollutant (Zinc oxide, antimony tris[O,O-dipropyl] tris (dithiophosphate))	9	III	 	Emergency schedules (EmS) F-A, S-F
IATA-DGR Class	UN3077	Environmentally hazardous substance, solid, n.o.s. (Zinc oxide, antimony tris[O,O-dipropyl] tris (dithiophosphate))	9	III	 	Passenger and Cargo Aircraft Quantity limitation: 400 kg Packaging instructions: 956 Cargo Aircraft Only Quantity limitation: 400 kg Packaging instructions: 956 Limited Quantities - Passenger Aircraft Quantity limitation: 30 kg Packaging instructions: Y956

PG* : Packing group

15. Regulatory information

United States

HCS Classification

: Toxic material
Irritating material
Target organ effects

U.S. Federal regulations

: **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: Zinc oxide; antimony tris[O,O-dipropyl] tris (dithiophosphate); zinc bis(dibutylthiocarbamate)
Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act Section 112 : Listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 : Not listed
Class I Substances

15. Regulatory information

Clean Air Act Section 602 : Not listed

Class II Substances

**DEA List I Chemicals
(Precursor Chemicals)** : Not listed

**DEA List II Chemicals
(Essential Chemicals)** : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Zinc oxide antimony tris[O,O-dipropyl] tris(dithiophosphate)	1314-13-2 15874-48-3	1-5 1-5
Supplier notification	Zinc oxide antimony tris[O,O-dipropyl] tris(dithiophosphate)	1314-13-2 15874-48-3	1-5 1-5

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: ZINC OXIDE FUME

New York : None of the components are listed.

New Jersey : The following components are listed: ZINC OXIDE; ANTIMONY compounds

Pennsylvania : The following components are listed: ZINC OXIDE (ZNO); ANTIMONY COMPOUNDS

California Prop. 65

None of the components are listed.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Zinc (and its compounds); Antimony (and its compounds)

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists :

- Australia inventory (AICS)**: All components are listed or exempted.
- China inventory (IECSC)**: All components are listed or exempted.
- Japan inventory**: Not determined.
- Korea inventory**: Not determined.
- Malaysia Inventory (EHS Register)**: Not determined.
- New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
- Philippines inventory (PICCS)**: Not determined.
- Taiwan inventory (CSNN)**: Not determined.

**Chemical Weapons
Convention List Schedule
I Chemicals** : Not listed

15. Regulatory information

Chemical Weapons : Not listed
 Convention List Schedule
 II Chemicals

Chemical Weapons : Not listed
 Convention List Schedule
 III Chemicals

16. Other information

Label requirements : HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

**Hazardous Material
 Information System (U.S.A.)** :

Health	*	2
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection
 Association (U.S.A.)** :



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of issue : ***.
Date of previous issue : No previous validation.
Version : ***

Indicates information that has changed from previously issued version.

Notice to reader

16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

*** draft only ***